Claims

1. A method for optimizing the fabrication of products that include lites cut from said glass sheets comprising:

     defining a plurality of batches wherein each batch requires a specified number and type of glass lites for use in fabricating products in said batch;

     laying out a pattern of lites to be cut from a first set of glass sheets to fulfill the lite requirements for one batch in said plurality of batches;

     identifying one or more underutilized glass sheets in the first set having free space with no lites designated to be cut in the one batch; and

     laying out a pattern of lites to be cut to fulfill the lite requirements of one or more additional batches in said plurality of batches by utilizing at least some of the free space on the underutilized glass sheets of the first set and designating other glass sheets from which to cut other lites in said additional batch.

2. The method of claim 1 wherein the step of laying out a pattern of lites for a batch is performed by a programmable device and wherein the programmable device interfaces with a computer monitor and additionally providing a color coding identifier on said monitor for identifying different lites from different batches.

3. The method of claim 1 wherein the free space on the underutilized glass sheets is used to fulfill the lite requirements of more than one additional batch in the plurality of batches.

4. The method of claim 1 wherein the free space on the underutilized glass sheets is also used to provide filler lites of a specified size not designated for use in any particular batch but instead on an as needed basis.

5. The method of claim 4 wherein a display is used to indicate to an operator how many of the filler lites to create.

6. The method of claim 2 wherein the user interface allows the user add lites to a layout in the event the user knows of a specific need that can be accommodated by unused space on an underutilized glass sheet.

5   7. The method of claim 1 additionally comprising cutting out lites from the glass sheets with an automated cutting apparatus and instructing an operator regarding placement of the lites into appropriate storage units positioned with respect to the cutting apparatus.

8. The method of claim 1 wherein in addition to laying out a pattern of lites to be cut from the

10   first set of glass sheets, one or more remnant sheets of regions of underutilized sheets are cut from the first set of glass sheets for later use in providing glass lites.

9. The method of claim 1 wherein the first set of glass sheets are standard size glass sheets and non-standard size remnant sheets are also identified on underutilized regions of the one or more

15   underutilized glass sheets.

10. The method of claim 9 wherein an operator is prompted to place a remnant sheet onto a cutting table from a storage unit to fulfill a requirement of one of said plurality of batches.

20   11. The method of claim 1 wherein the free space of a glass sheet is filled with different types of lites which have different type priorities and further wherein a controller heuristically changes the type priority of said lites based on input gathered via a computer network from other machines or programmable devices.

25   12. The method of claim 11 wherein the different type of lites for filling free space on a sheet comprises sequential batch lites, filler lites, remake lites, remnant lites from a remnant sheet, or temporary lites from other batches.

13. Apparatus for optimizing the fabricating of products that include lites cut from said glass

30   sheets comprising:

a) a cutting station including a moveable cutting head supported for movement with respect to a glass sheet positioned with respect to the cutting head from which glass lites are cut;

b) a plurality of storage units positioned with respect to the cutting station for storing lites as they are cut from sheets of glass by the cutting head;

5   c) a controller or ancillary computer including a programmable device for:

i) defining a plurality of batches wherein each batch requires a specified number and type of glass lites for use in fabricating products in said job;

ii) laying out a pattern of lites to be cut from a first set of glass sheets to fulfill the lite requirements for one batch in said plurality of batches;

10   iii) identifying one or more underutilized glass sheets in the first set having free space with no lites designated to be cut in the one batch; and

iv) laying out a pattern of lites to be cut to fulfill the lite requirements of one or more additional batches in said plurality of batches by utilizing at least some of the free space on the underutilized glass sheets of the first set and designating other glass sheets

15   from which to cut other lites in said one or more additional batches.

14. The apparatus of claim 13 additionally comprising a computer monitor that uses a color coding scheme to identify different lites from different batches.

20   15. The apparatus of claim 13 additionally wherein the controller allocates the free space on the underutilized glass sheets is used to fulfill the lite requirements of more than one additional batch in the plurality of batches.

16. The apparatus of claim 13 additionally wherein the controller allocates the free space on the

25   underutilized glass sheets is used to provide lites of a specified size not designated for use in any particular batch but instead on an as needed basis.

17. The apparatus of claim 13 additionally comprising a viewing monitor and wherein the controller comprises an interface for displaying images of the sheet layout on said viewing

30   monitor.

18. A control system for a glass cutting station for use in cutting glass lites from standard size glass sheets moved to the cutting station comprising:

a programmable controller for:

a) defining a plurality of batches wherein each batch requires a specified number and type of glass lites for use in fabricating doors or windows in said batch;

b) laying out a pattern of lites to be cut from a first set of standard size glass sheets to fulfill the lite requirements for one batch in said plurality of batches;

c) identifying one or more underutilized glass sheets in the first set of standard size glass sheets having free space with no lites designated to be cut in the one batch; and

d) laying out a pattern of lites to be cut to fulfill the lite requirements of one or more additional batches in said plurality of batches by utilizing at least some of the free space on the underutilized glass sheets of the first set and designating other glass sheets from which to cut other lites in said one or more additional batches.

19. The control system of claim 18 wherein the free space of a glass sheet is filled with different type of lites which have different type priorities and further comprising a computer network of other machines or programmable devices for communicating information to the controller for adjusting the priorities.

20. The control system of claim 19 wherein the different type of lites for filling free space on a sheet comprises sequential batch lites, filler lites, remake lites, remnant lites from a remnant sheet, or temporary lites from other batches.

21. A computer readable medium for storing instructions for use in optimizing the fabrication of windows or doors that include lites cut from said glass sheets, said medium comprising instructions for:

defining a plurality of batches wherein each batch requires a specified number and type of glass lites for use in fabricating products in said batch;

laying out a pattern of lites to be cut from a first set of glass sheets to fulfill the lite requirements for one batch in said plurality of batches;

identifying one or more underutilized glass sheets in the first set having free space with no lites designated to be cut in the one batch; and

laying out a pattern of lites to be cut to fulfill the lite requirements of one or more additional batches in said plurality of batches by utilizing at least some of the free space on the underutilized glass sheets of the first set and designating other glass sheets from which to cut other lites in said additional batch.

22. The computer readable medium of claim 21 further comprising instructions for color coding lites on a viewing monitor for identifying different lites from different batches.

23. The computer readable medium of method of claim 21 wherein the instructions that identify the free space on the underutilized glass sheets attempts to fulfill the lite requirements of more than one additional batch in the plurality of batches.

24. The computer readable medium of claim 21 wherein the instructions analyze free space on the underutilized glass sheets to provide filler lites of a specified size not designated for use in any particular batch but instead on an as needed basis.

25. The computer readable medium of claim 21 wherein the instructions further include instructions for controlling a viewing display to indicate to an operator how many of the filler lites to create.

26. The computer readable medium of claim 25 wherein the instructions create a user interface on the viewing display for allowing the user to add lites to a layout in the event the user knows of a specific need at the time an underutilized glass sheet is identified.

27. The computer readable medium of claim 21 additionally comprising instructions that instruct an automated cutting station to cut out lites from the glass sheets and instructions for prompting an operator regarding placement of the lites into appropriate storage units positioned with respect to cutting station.

28. The computer readable medium of claim 21 wherein in addition to laying out a pattern of lites to be cut from the first set of glass sheets the instructions identify a set of one or more remnant sheets of underutilized regions of the first set of glass sheets for subsequent use in making lites.

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29 The computer readable medium of claim 21 wherein the instructions identify non-standard size remnant sheets to be cut from underutilized regions of the first set of glass sheets.

30. The computer readable medium of claim 29 wherein the instructions prompt an operator to

10 place a non-standard remnant sheet previously cut from a standard size sheet onto a cutting table from a storage unit to fulfill a requirement of one of said plurality of batches.

31. The computer readable medium of claim 21 wherein the free space of a glass sheet is filled with different types of lites which have different type priorities and further wherein a controller

15 heuristically changes the type priority of said lites based on input gathered via a computer network from other machines or programmable devices.

32. The computer readable medium of claim 31 wherein the different type of lites for filling free space on a sheet comprises sequential batch lites, filler lites, remake lites, remnant lites from a

20 remnant sheet, or temporary lites from other batches.

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